

UCRSF 2.1

12/06/06



Kevin Rochlin/R10/USEPA/US

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To UCR Project Manager Group, cara and elizabeth, Monica
Tonel/R10/USEPA/US

cc

bcc

Subject Comments on the Teck RMAO letter

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Attached are EPA's comments on this document. We have incorporated comments received from everyone into these. Everyone had comments concerning additional RAOs to add to the Teck list. However, without a CSM, I still do not believe that our combined list would encompass everything. Therefore, I used everyone's additional RAOs as examples of the fact that there were missing pieces and referred everything back to the CSM.

If you have comments or corrections please let me know. I would like to get this out at the end of this week.

Kevin



RAO deliverable comments.doc

From:

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Reply to
Attn of: ECL-112

David Godlewski
Manager Environmental & Public Relations
Teck Cominco American, Inc.
501 North Riverpoint Boulevard
Spokane, WA 99202

Re: Technical Memorandum on Risk Management Based Action Objectives
(RMAO)

Dear Mr. Godlewski,

Attached to this letter are the comments on the referenced Memorandum. Because the RMAOs were prepared prior to the completion and approval of the conceptual site model (CSM), there are a number of potential pathways that may need to be addressed as this project progresses. We have noted some of these in our comments. We are requesting that some revisions be made to the Memorandum. However, because there is not an approved CSM, we are not requiring that the list of RMAOs be expanded at this time.

As required on page 2 of the Scope of Work, we request that Teck prepare a brief response to the comments for review prior to revising the document. I would be glad to discuss potential response formats with you.

If you have any questions, please call me at 206 553-2106.

Sincerely,

Kevin Rochlin
Project Manager

Attachment

.cc: by email only
Marko Adzic
EPA Tecknical Team
Participating Parties
Cara Steiner-Riley
Elizabeth Mckenna

Comments: Technical Memorandum on Risk Management Based Action Objectives

General Comments

The overarching goal of CERCLA and this RAO process is to protect human health and the environment. The path to this endpoint is the performance of an RI/FS consistent with CERCLA, the NCP, and EPA guidance. The Technical Memorandum on Risk Management Based Action Objectives (RMAOs) is a reasonable start to this end.

EPA expects the RMAOs to evolve during the RI/FS process. In particular, we expect to see these refined further as the Conceptual Site Model is developed and as the Assessment and Measurement Endpoints are selected during Problem Formulation. Additional logical times to refine RMAOs are following the Risk Assessment, the RI, and the FS.

Table 1 does not include an exhaustive list of pathways, although it does address many important ones. We do not see the need to expand the table at this time given that the CSM has not been prepared. Clearly however, this table in no way restricts the pathways to be developed in the CSM, and the pathways that will be investigated in the RI, nor does it restrict those evaluated in the ERA. Language to that effect needs to be added to the document or table.

Some of the pathways that will be discussed during Problem Formulation include:

- contaminant transfer from groundwater to porewater, sediment and surface water,
- organism exposure pathways involving direct dermal contact or ingestion with the different media,
- sediment and soil to surface water and groundwater; sediment pore water to surface water; pore water to benthic organisms,
- Organism exposure pathways involving direct dermal contact or ingestion with the different media,
- Aerial transport of contaminated soils,
- fish exposure via consumption of benthic organisms,
- Exposure pathways to amphibians and reptiles, zooplankton, and shellfish.

We are confident these and other pathways will be considered in the development of the CSM which will also address trophic connections.

In addition, while Table 1 seems to focus on populations, we expect that other

ecosystem properties may be considered or included in the ERA (e.g., community metrics, dynamics, or ecosystem functions).

The contaminants of interest (COI) are still being defined based on Phase I data and anticipated data collection in the future. The COIs should not be limited to USEPA (2004). A more comprehensive characterization of the COIs is needed for the RI/FS.

Specific Comments

1. Page 1, 2nd paragraph, 2nd sentence lists contaminants of interest (COIs) identified in previous investigations conducted by state and federal agencies. The COIs listed include those identified in USEPA (2004) yet the statement is vague for "other metals and metalloids". The COIs are still being defined (e.g., fish tissue report). Other compounds that are potentially of interest are pesticides and PAHs. COIs should not be restricted to USEPA (2004). We suggest that the 3rd sentence be revised to emphasize that "the RI/FS process will ...further delineate the nature and extent of contaminants present at the Site, including a more comprehensive characterization of the COIs."
2. Page 1, 2nd paragraph, last sentence uses the term "support risk-based assessment of the potential exposure by ecological receptors to Site-related contaminants." This should be changed to read "and support an ecological risk assessment."
3. Page 1, par 3, sent 1: We suggest changing the wording to read: "Preliminary ecological RMAOs for the Site will be defined consistent with the NCP and EPA Guidance documents,..." since EPA guidance documents call for sound science among other guiding principles.
4. Page 2, last paragraph to Page 3, last sentence: As stated in previous comment, COI list is still being refined. We should not limit this list to what was defined in 2004 by USEPA.
5. Page 2, last par: For clarification, since the term RMAO is not in EPA guidance, the sentence should read: "EPA guidance (USEPA 1988) specifies that RAOs (here, termed RMAOs) ..."
6. Page 2, last par: We encourage Teck to consider the following definition of RAOs as compared with PRGs and Final Cleanup Levels:

RAOs, PRGs and Final Cleanup Levels

Remedial action objectives (RAOs) provide a general description of what the cleanup will accomplish (e.g., restoration of groundwater).

Preliminary remediation goals (PRGs) are the more specific statements of the desired endpoint concentrations or risk levels, for each exposure route, that are believed to provide adequate protection of human health and the environment based on preliminary site information. Initial PRGs are developed early in the RI/FS process and are based on ARARs and other readily available information, such as concentrations associated with 10^{-6} cancer risk or a hazard quotient equal to one for noncarcinogens calculated from EPA toxicity information. Initial PRGs may also be modified based on exposure, uncertainty, and technical feasibility factors. As data are gathered during the baseline risk assessment and RI/FS, PRGs are refined into final contaminant-specific

Cleanup levels. Based on consideration of factors during the nine criteria analysis and using the PRG as a point of departure, the final cleanup level may reflect a different risk level within the acceptable risk range (10^{-4} to 10^{-6} for carcinogens) than the originally identified PRG. The final cleanup levels, not PRGs, are documented in the Record of Decision. (EPA 1997;

<http://www.epa.gov/superfund/resources/rules/rulesthm.pdf>)

7. Page 3, second complete paragraph, parenthesis in last sentence. Chemicals, receptors, and exposure media may be screened out or screened in as new data become available.
8. Table 1, 3rd block under Sediments: Please delete "non-nuisance" since this term is not yet defined. It can be discussed in the work plan and during Problem Formulation when Assessment and Measurement Endpoints are selected.
9. Table 1, 1st block under Surface Water: Rewrite in similar terms to the other RMAOs. Change to read: "Reduce to acceptable levels the risks to ..."